

FOR STUDENTS HOPING TO TAKE ALGEBRA 2/TRIGONOMETRY
HONORS AS A FRESHMAN

ALGEBRA/GEOMETRY PROFICIENCY TEST

This proficiency test will help us determine if you covered enough algebra and geometry in order to be successful in the next course, Algebra II/Trigonometry Honors.

Algebra topics that a student should be able to work with easily and accurately include:

1. solving linear equations
2. graphing linear equations
3. solving proportions
4. finding and interpreting slope
5. writing equations of lines
6. solving systems of linear equations (substitution and elimination)
7. using properties of integer exponents
8. simplifying and performing operations with polynomials (including factoring)
9. solving quadratic equations (by all methods)
10. graphing quadratic equations
11. simplifying and performing operations with radical expressions
12. solving radical equations

Geometry topics that students be able to demonstrate proficiency with include:

1. **Geometric vocabulary and notation**
2. **Application of Postulates and Theorems, such as:**
 - i. Segment/Angle Addition
 - ii. Segment/Angle Bisectors and Midpoint
 - iii. Angle Pair Relationships
 - iv. Parallel Lines and transversals (including proof)
 - v. Triangle Congruence (including proof)
 - vi. Special Segments in Triangles (circumcenter, incenter, centroid, orthocenter)
 - vii. Similarity Postulates and Theorems (including proof)

Properties of Shapes

- i. Apply properties of triangles
- ii. Apply properties of quadrilaterals

Right Triangles

- i. Pythagorean Theorem
- ii. Converse of Pythagorean Theorem
- iii. Special Right Triangles (30-60-90 and 45-45-90)
- iv. Geometric Mean Theorems (Altitude/leg)
- v. Right triangle trigonometry (missing side/angle)
- vi. Angle of elevation/depression application problems

Logic and Proof

- i. make a conjecture and write a counterexample
- ii. identify the converse, inverse, and contrapositive of a conditional
- iii. write a two-column proof

Circles

- i. finding circumference and arc length
- ii. identifying diameter, radius, minor arc, major arc
- iii. central and inscribed angles relationships to their intercepted arcs

Note: At the time of the placement test, we would hope to be able to see fluency in most of these areas, understanding that one or two areas may not have been completely covered by the time of the placement exam.

When you prepare for the test, you should **study**. One good strategy for studying math is to do some sample problems that you have the answers for, so you can check to see if you are doing them correctly.

Bring your calculator and a pencil for the test. Good luck on the test. The test is being administered on Wednesday, April 3th from 5:30 - 7:15 pm. It will also be administered on Saturday, April 6th from 9:30 - 11:15 am. If you have any questions call the main office (630-530-3464) or send an email to midasek@iccatholicprep.org

Thank you!
~ The Math Department at ICCP